

*V. canina* var. *multicaulis* A. Gray, Bot. Gaz. **11** : 292. 1886.

*V. multicaulis* Britton, Mem. Torrey Club **5** : 227. 1894.

Not *V. multicaulis* Jord. Pugill. Pl. Nouv. **15**. 1852.

Michaux, describing *Viola debilis* (Fl. Bor.-Am. **2** : 150. 1803), questionably assigns Walter's *V. canina* to his species, but *V. debilis* is described as having "floribus albis ; longe pedunculatis," and is generally referred to *V. striata* Ait., while Walter's *V. canina* is quite certainly the species under consideration.

#### SOME EXTENSIONS OF RANGE

*Viola rotundifolia* Michx. (to the mountains of North Carolina and Tennessee, *fdc* Small). Very abundant at Tomassee Knob, Mountain Rest and Russells, Oconee Co., South Carolina, and on densely wooded slopes about Rabun Bald in Rabun Co., Georgia.

*Viola canadensis* L. (to North Carolina, *fdc* Small). Occasionally found on damp shady ravine-sides and slopes looking northward about Rabun Bald in northeastern Georgia, and abundant on the north side of Tomassee Knob, Oconee Co., South Carolina.

CLEMSON COLLEGE, S. C.

#### REVIEWS

##### Knuth's Handbook of Flower Pollination\*

Hermann Müller's, "The Fertilization of Flowers," upon which the present encyclopedic work is based, was published thirty-three years ago, and its English translation, by Thompson, ten years later. That book has been out of print for several years, and subsequent investigations have made desirable, not a new edition of the older publication, but an entirely new work. This was undertaken by Dr. Knuth, whose extensive researches in the subject for over fourteen years peculiarly fitted him for the task.

The work is dedicated to Christian Konrad Sprengel and Dr.

\* Knuth, Dr. Paul. Handbook of Flower Pollination, based upon Hermann Müller's work, "The Fertilization of Flowers by Insects." Translated by J. R. Ainsworth Davis. Vol. I, pp. xix + 382, *f. 1-81*. Oxford : At the Clarendon Press. 1906.

Hermann Müller, the two greatest masters of the science of flower pollination. The present volume contains, as a frontispiece, a likeness of Kölreuter, the pioneer in observations on the pollination of flowers.

Three volumes are planned, as follows: Vol. I. Introduction and literature; Vol. II. The observations in flower pollination hitherto made in Europe and in the Arctic regions; Vol. III. Observations in flower pollination made outside of Europe. It is announced that volume II is now in press. This "Handbook" is of uniform binding with Pfeffer's *Physiology of Plants* and Goebel's "Organography."

Volume I gives a short historical review of the subject, from Kölreuter to the present. This occupies 211 of the 382 pages. The treatment here is general, and deals with the structure of flowers and insects in relation to pollination. The remainder of the book is an exhaustive bibliography down to January 1, 1906. Here the names of American authors occupy a conspicuous place.

There is a "Preparatory Note to the English Edition" by I[saac] B[ayley] B[alfour]. The work is the first one of importance on the subject in which the modern distinction between the terms pollination and fertilization is recognized. Unlike the numerous "popular" presentations of the subject, the illustrations are none of them colored, but do, however, possess the merit of really illustrating the text. There is no index, and while one would have been very desirable, the character of the text makes the loss felt less than is the case in most books, and its need is fairly well supplied by a rather full table of contents.

In any recent writings on pollination one naturally looks for either confirmation or refutation of Plateau's iconoclastic contributions, which challenged the virtually universally accepted theory of the ecological rôle of color in flowers. A "Supplement to the Introduction" contains, besides a biographical note on Kölreuter, a critical examination of Plateau's observations and theories. Their importance is minimized by Knuth, who disagrees with Plateau fundamentally, and closes his critique with the statement of the following law:

“Attraction from considerable distances is certainly effected for the most part by the odour of the flowers, which fills the air as with invisible clouds, and indicates the direction for flight; when the insects approach nearer (1-2 m.), the colours of flowers undertake the task of attracting them further, and when they finally settle, the lines and points long since described by Sprengel under the name of ‘Saftmal’ (*i. e.*, sap-mark) serve to point out the way to the nectar.”

C. STUART GAGER.

### FIELD MEETINGS OF THE CLUB

The fifth forestry lesson was given in Van Cortlandt Park on June 2. Twelve persons were present, with Dr. Marshall A. Howe as instructor and guide. The general subject of the lesson was “Reproduction of the Forest.” Attention was directed to the extensive and often wasteful cutting of the American forests and the great economic importance of the replacement of the forests was emphasized. Natural and artificial methods of forest reproduction were discussed, as was also the rapidity of growth of such trees as the white pine, the hardy catalpa, and the black locust, which, even when grown from the seed, may yield one or more crops of marketable timber within an ordinary lifetime. The temperature of the air, the amount of moisture in the soil, and other less important conditions affecting the prevalence of certain trees were spoken of. The fact that seedlings of certain trees cannot live and thrive in the shade of their parents was mentioned as one of the chief causes of the rotation or succession of species that is sometimes observed in forests. Young beeches and maples are so tolerant of shade that they commonly succeed older individuals of the same species, and white pine often succeeds itself when the stand is not too dense.

On June 9, the sixth forestry lesson was given at the New York Botanical Garden, with Mr. H. A. Gleason as instructor and guide. The hemlock forest and other wooded portions of Bronx Park were visited. The character of the forest floor, the soil and light conditions, plant associations, and natural pruning were the special subjects for observation and discussion.